



Tree trunks along Cave Creek in the Chiricahua Mountains frame a pair of sycamores washed in autumn sunshine.

More intensive riparian management allows increased production and protection of water, soil, forage and wildlife resources.

The Desert Oasis

by Don Floyd,
UA Extension Natural Resources Specialist

An arc of lightning links the sky and ridgetop for less than a second, back-lighting the sheets of rain and the breaks of the Mogollon Rim. As the storm gathers strength, the swales rise along the riparian corridors, watering the trees and grasses on the way to the deserts below. Throughout the Southwest, riparian zones, the bright green strips along our desert and mountain streams, are the intersections where different land uses cross. Here, among the riffles, pools and shade, wildlife habitat, recreation, forage production, watershed protection and even timber production overlap.

On Arizona's public lands, organized groups such as livestock producers, water agencies, hikers, hunters, fishermen, bird watchers and wood cutters often compete with each other to insure their special interests. Each group has a particular interest in the management of stream-side resources.

Throughout the state, Extension agents and specialists and faculty members from the UA School of Renewable Natural Resources are working with these interest groups and land management agencies to promote cooperative planning and management of public land



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resources. A rapidly growing population, a relatively finite resource and scarce federal management dollars require that those who use the public lands find ways to cooperate rather than compete for natural resources.

Dan Campbell, state director of the Arizona Nature Conservancy, spends much of his time dealing with the problems of riparian areas. The Conservancy has acquired several distinctive riparian habitats in southern and central Arizona.

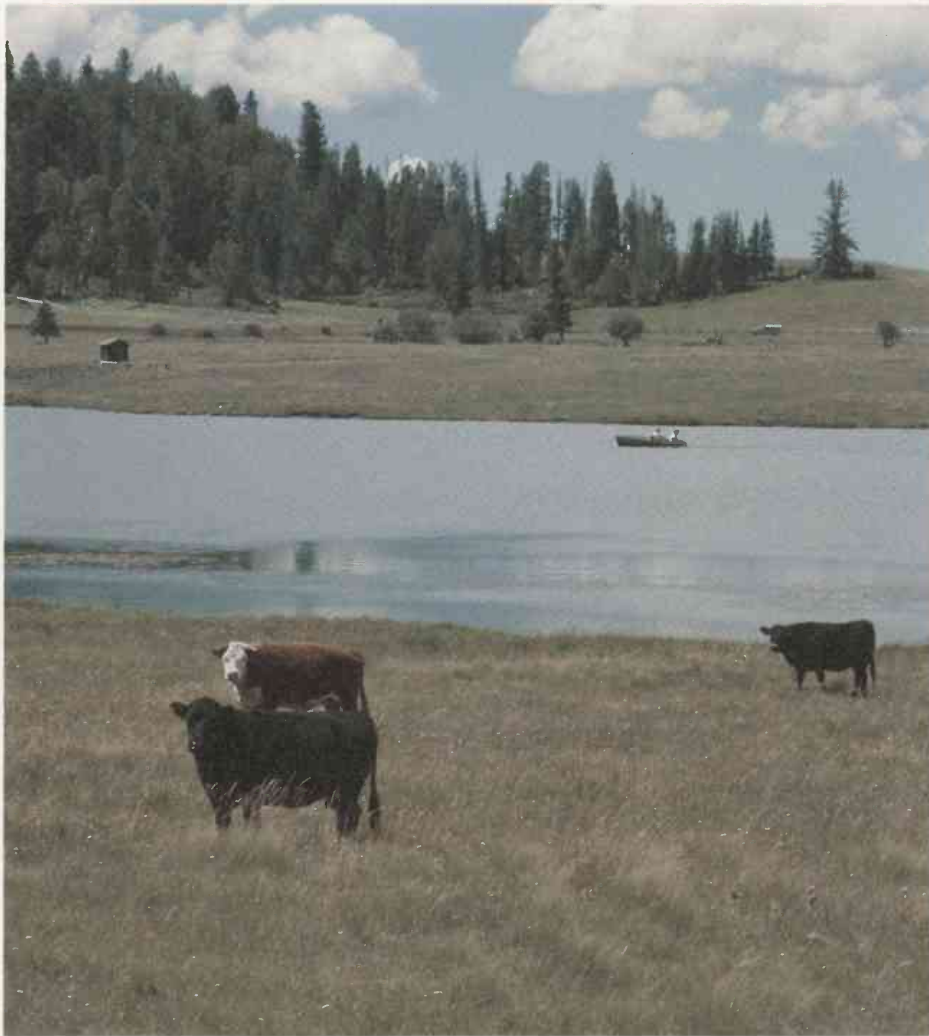
The climatic changes through the centuries, Campbell says, have made Arizona a much drier place than it used to be. Rainfall has decreased and the once abundant wetlands have contracted to corridors along the permanent and intermittent streams. As

a natural consequence many wildlife species have concentrated here as well. Campbell says it is a sad testimonial that during the last 100 years we have lost 90 percent of the remaining riparian habitat. By purchasing and protecting quality private habitat, the Conservancy has had a major impact in protecting these remnant communities for wildlife habitat and open space.

Ranchers Conserve Riparian Resources

Two public land ranches in central Arizona and a small private ranch in the northeastern part of the state are good examples of how cooperation and intensive management are paying off in improved riparian habitat. Rather than limiting some uses, more intensive riparian management allows increased production and protection of water, soil, forage and wildlife resources.

The Sedow and Roosevelt allotments are located on the Tonto National Forest, in the Salt River watershed east of Phoenix. Ranchers Jimmy Griffin and Dwight Cooper have worked with Tonto forest managers and UA Cooperative Extension



Sharing the public land through multiple use is apparent along Big Lake in the Apache Sitgreaves National Forest.

(opposite right) Giant cottonwoods line Santa Cruz County's premier riparian habitat--Sonoita Creek.

Late afternoon sun bursts through the colored branches of a sycamore in the Chiricahua Mountains.



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to improve livestock and wildlife management and monitor changes in riparian vegetation.

The result has been dramatic improvements in the reproduction of Fremont cottonwood trees and increasing length and density of stream-side vegetation. These changes are important for providing nesting habitat for endangered wildlife species like the common Black Hawk. In addition, livestock and wildlife use of forage on the uplands adjacent to the riparian areas is more uniform. Following the summer rains, the hills are green with native grasses like sideoats grama and sand dropseed. Rangeland monitoring studies show that these species are increasing on the slopes and hilltops, providing additional forage and slowing soil erosion.

Both Cooper and Griffin report that canyon bottom streams which used to be good places to gather and trail cattle because of the sparse vegetation are now filled with large and small cottonwoods, sycamores and walnuts. Several years ago both ranchers began using grazing systems which allow more intensive livestock and



forage management and their range conservation efforts are proving to be a model.

Griffin is the permittee on the Forest Service's 41,000 acre Sedow allotment. The area is divided into six pastures which allows Griffin to concentrate his cattle in specific areas at different times of the year. The result has been better wildlife habitat and improved livestock forage. As rangeland specialists from the Forest Service and UA Cooperative Extension monitored the allotment during the last few years they found that the density of cottonwood increased from 17 trees per acre to 439 trees per acre between 1978 and 1986. More than one quarter of these cottonwoods have diameters greater than two inches. The protection of tree seedlings is important. Many wildlife spe-

cies and cattle prefer the tender twigs of young cottonwoods and willows. By allowing the creek bottoms a rest from grazing and reducing the time cattle spend in the riparian zones, these young trees can be protected.

The Roosevelt allotment is located in steep desert mountains dominated by saguaro cactus and desert shrubs like jojoba. Here rancher Dwight Cooper and the Tonto forest staff have concentrated on improving water distribution.

Cooper explains his conservation program as a bubbling spring box fills the shady corridor with sound. The box collects water in the narrow canyon and a pump lifts the water uphill to a tank 800 vertical feet and one and one-half miles away. Cattle congregate near the upland troughs now and less often in the lush riparian areas.

When the troughs are filled or the cattle are in a different pasture, a float valve diverts the water back into the streambed. The additional watering points allow deer and cattle to use nutritious browse that was previously too far from water. Better management on the Roosevelt allotment has allowed Cooper to increase livestock numbers from 170 to 230 head while producing additional dense riparian habitat.

In northeastern Arizona near Alpine, riparian zones and the meadows associated with them are often the focus of competition between elk, cattle and people—particularly in the early spring.

Randolph Jenks has worked hard on his private ranch properties to demonstrate that with proper management, wildlife habitat can be

improved while increasing forage for livestock. On Cotton Flat, Jenks has fenced off four areas of about one to two acres creating wet meadow sites. The exclosures keep cattle out but allow deer, elk and birds access to water and cover. Jenks calls the results "most amazing."

When he and his wife Julia bought Cotton Flat in 1981 it was dusty and overgrazed. Now the 60 acres of private land surrounded by the Apache-Sitgreaves National Forest has three permanent springs and two permanent ponds. Jenks has planted cottonwood and aspen trees to replace the ones that died out when the land dried up. He has individually fenced the trees to keep the elk from eating them.

Jenks' success illustrates how rapidly riparian areas can improve with good management. "One of the nice things about riparian areas is the presence of water which means that plant communities can respond rapidly to improvements in grazing systems and livestock management," says Dr. Phil Ogden, professor of range management and one of the college's Extension range specialists.

Elk management has become an important issue in managing riparian areas and mountain meadows in the White Mountains. The elk herd has increased in recent years and while cattle are relatively easy to control with fences, it's hard to manage where and what the elk eat. Pat Hanrahan, range staff officer on the Apache Sitgreaves National Forest, points with pride to the cooperative effort to establish Colter Reservoir near Lee Valley. Here the Forest Service, Anglers United and Ducks Unlimited and other conservation groups are proposing to recreate a reservoir and its associated riparian habitat for recreation and wildlife habitat. Hanrahan says all of the groups are working together to address the concerns of the Round Valley Water Users Association which uses much of the water for irrigation.

Demonstrating that public lands can provide better wildlife habitat and livestock forage at the same time is important. The management of livestock on riparian areas has been controversial for a number years. There is no lack of opinion and published research. Yet



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there is little agreement on the effects of livestock grazing in Southwestern riparian zones.

The failure of Congress to establish a National Conservation Area last year along southeastern Arizona's San Pedro

"The question is how to get livestock managed in concert with a lot of other people's desires."

River between Benson and Sierra Vista, occurred at least partly because of controversy over the exclusion of livestock grazing and questions over water rights.

Dave Stewart, range staff officer on the Tonto National Forest told participants at last year's Arizona Riparian Council Conference in Flagstaff, that the future of livestock grazing on the national forests depends on livestock producers adopting better management programs. Stewart says that with better management the use of forest lands by livestock will continue, but without better management by permittees cattle numbers would certainly be reduced.



L.G. KETCHUM



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Along Cienega Creek near Tucson, Frank Gregg stands in the shade of a large ash tree as he talks with rancher Walt Armer and a group of faculty and administrators from the UA College of Agriculture. Gregg is a professor of renewable natural resources and the former director of the Bureau of Land Management. "There's no question that you can demonstrate that you can manage livestock grazing in these riparian systems and do a good job of it. The question is how to get livestock managed in concert with a lot of other



(opposite page) Scenic Aravaipa Canyon is home to a herd of bighorn sheep and more than 150 bird species. The wilderness area is also popular among hikers.

Bureau of Land Management ranger Andy Wigg routinely measures water flow of Aravaipa's year-round stream.

(below) A deer waits in the shade along Tucson's urban riparian habitat—Sabino Canyon.

